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ABSTRACT

Research studies on the academic ability of individuals recruited into teacher education have produced mixed findings; some studies have found that academically talented teachers tend to leave the classroom in greater numbers than less academically capable colleagues, while other findings have indicated that teaching attracts and retains those with low measured ability. A study sought to determine the employment patterns of former education students at Texas A & M University and to compare these employment patterns with their academic profiles. Research questions concerned: (1) academic ability of former education students who are teaching, measured in terms of their SAT scores and cumulative grade point ratios, compared to academic ability of former students who are not teaching; and (2) employment options former teacher education students exercise. Six hundred sixty-eight education and agriculture graduates comprised the study's population. Findings revealed that approximately 70 percent of the 668 individuals in this sample are thought to be teaching. Those employed as teachers earned higher grades as undergraduates and had slightly higher SAT scores than their counterparts who were not teaching. (JD)

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Employment and Academic Characteristics of Former Undergraduate Education Students

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Abstract

This inquiry was undertaken to link the current employment status of former students majoring in education with their academic characteristics. Findings reveal that approximately 70 percent of the 668 individuals in this sample are thought to be teaching. Further, those employed as teachers earned higher grades as undergraduates and had slightly higher SAT scores than their counterparts who are not teaching in educational organizations.

A recurring theme in the literature, is the the limited academic ability of individuals recruited into teacher education. Evidence to support this theme occurs when 74 percent of the teachers who are administered a proficiency test in mathematics are unable to find the value of an algebraic expression, or when 79 percent of these teachers are unable to equate numbers written in words to corresponding figures (Shell, note 1). The theme is also stressed by Weaver (1979) who states that schools of education are selecting potential educators from among the least academically talented. In documenting this position Weaver presents comparative data drawn from Scholastic Aptitude Test (SAT) scores, the American College Testing program (ACT) scores, college grade point averages, Graduate Record Examination (GRE) scores and the National Teacher Examination (NTE) scores. Regrettably trends across all of these indicators were downward when scores from an earlier period were compared with more recent data.

One proposal for reversing this condition is for teacher preparation programs to upgrade their admissions criteria. One proponent of this approach posits that placing weak students in a classroom in the role of teacher creates an environment where they are very likely to experience frustration and failure (Watts, 1980). Further Watts (1980) portends that an excellent preparation program cannot make a competent teacher out of an inadequate candidate.

In an extensive examination of teacher placement and retention in North Carolina, Schlechty and Vance (1981) report that those who are now entering teaching score lower on measures of academic ability than did their recent predecessors. Further, they report that academically talented individuals among the teaching ranks tend to leave the classroom in greater numbers than their less academically capable colleagues. Interestingly, these researchers conclude that the quality of teachers who serve in our schools is as much a function of the quality of life teaching affords as it is a function of admission standards

and test scores (Schlechty and Vance, 1981).

Using data from the National Longitudinal Study of 1972 High School Seniors, these investigators have continued with this line of inquiry (Vance and Schlechty, 1982; Schlechty and Vance, note 2). Their findings from analyzing the national sample parallel their earlier work, that is, teaching attracts and retains those with low measured academic ability, while more able academic recruits into teaching soon exit the field. Vance and Schlechty (1982) caution policymakers to consider carefully whether simply raising academic standards for admission into teacher education will resolve the discouraging trends their research have identified. In fact, they state that raising entrance requirements for teacher education given the present talent pool will result in a teacher shortage.

Using a different approach, Savage (note3) has examined the academic qualifications of women at Texas A&M University who chose different majors. He used SAT scores and high school rank as indicators of academic ability. His use of SAT scores differed in that the range of SAT scores were noted for a cohort of female students entering the university. These values were monitored across a four year period, resulting in SAT percentile range values by major being recorded for each year. The average SAT value and high school rank of women choosing education as freshman were found to be predictably and substantially lower than the average SAT values of women choosing majors in business, engineering, liberal arts, science and agriculture. As time passed and the composition of each group changed through intrauniversity transfers and withdrawal from the university, differences in the range of SAT scores and high school rank values diminished among the women choosing different majors within the university. As seniors, the range of SAT scores among women choosing education as a major was quite comparable with majors in agriculture, business and liberal arts. These upward shifts in SAT scores across the cohorts of women choosing education also reflect a screening process throughout the program. The shifts in major

and the resulting improvement of the academic qualifications for education majors indicate that some women with high academic qualifications are choosing education after reassessing their original career choices. These findings are encouraging in light of a number of the other findings which report that the most capable women are now exercising noneducational employment alternatives much more than in the past.

When grade point ratios (GPR) are used as indicators of academic ability different trends occur. For example, Weaver (1979) and Schlechty and Vance (note 2) report teaching candidates hired for teaching positions have slightly higher GPR's than those not hired. Grade point ratios were also examined by Gallegos and Gibson (1982) in their effort to determine whether the quality of teaching candidates is declining. They compared grades from teacher education students graduating the past three years (1979-81) with a cohort group of a decade ago (1969-71) at a single institution. Their findings revealed that while grades at their institution have declined in recent years, the recent graduates outperformed their cohorts in terms of awarded grades.

Stirred by these mixed findings on the academic ability of prospective teachers and the numerous policy implications associated with these findings, this inquiry was undertaken to determine the employment patterns of former education students at Texas A&M University given their academic profiles. Specific research questions guiding this inquiry were:

1. Is the academic ability of former education students who are teaching, measured in terms of their SAT total scores and cumulative grade point ratios, similar to the academic ability of former students who did not enter teaching?

2. What employment options do former teacher education students exercise?

Procedures

Six hundred sixty-eight individuals who were senior education or agricultural education students at Texas A&M University during the 1979-80 academic year

comprised the population for this investigation. Nearly three-fourths of the sample or 487 of these individuals were women. Five subsamples were created given the departmental affiliation of the former students, that is, agricultural education 82, curriculum and instruction 352, health education 38, physical education 171, and industrial education 25. Academic characteristics such as departmental affiliation, academic rank, grade point ratio, SAT score, number of hours transferred were compiled on each individual during the 1979-80 academic year from academic records maintained in the office of the Dean. These data were subsequently concatenated with employment status information.

Procedures for obtaining employment status information varied across the subsamples. Information on the employment of former students in agricultural education were obtained from an interview with the coordinator of placement in agricultural education during the spring semester of 1982. The employment status of nearly all former students (81 of 82) were determined for this subsample. Former students in curriculum and instruction and health and physical education were mailed a request with an attached postcard. The request encouraged individuals to record their employment (position) on the self-addressed postcard and remit the card to the College of Education via the postal service. This procedure yielded a 40 percent return (143/352) from former students of curriculum and instruction, a 53 percent return (90/171) from former students of physical education and a 55 percent return (21/38) from past students of health education. These postcard surveys were conducted concurrently, during a ten week period in the spring semester of 1982. Because industrial education had conducted a mailout survey of former students during the preceding year an additional survey of these individuals was not considered to be a prudent activity. Thus, information on the employment status of 56 percent of the graduates of industrial education (14 of 25) were obtained from departmental summaries of their recent follow-up

effort. Because a variety of techniques were used to obtain the employment status information, the validity of the information may be questioned. Yet, due to the descriptive nature of the information sought, that is, a report of employment of former graduates, these varied approaches are not too troubling. However, the time period since graduation that information was obtained ranges from approximately 18 months for industrial education and agricultural education to nearly 24 months in curriculum and instruction, health, and physical education. Thus, the results of the subsequent analysis must be tempered to reflect when the employment status data were collected.

Findings

Data analysis associated with the initial research question addressing the academic ability of former education students included descriptive summaries as well as inferential tests. These analyses are summaried in table 1. While

place table 1 about here

a number of different employment choices occurred in the employment status data, a dicotomous variable was established, that is, teaching and nonteaching. Former students were classified as teaching only if their employment was a full time position. To illustrate the strict application of this classification rule, former students who were substitute teaching at the time these data were collected were classified as non-teaching.

Due to the incidence of missing SAT scores and the restricted number of responses from the postal surveys, sample sizes varied substantially across the GPR and SAT comparisions. The initial comparision reveals that the average GPR of former teacher education students who are teaching ($\bar{X}_T = 2.94$, S.D. = .46) is statistically higher ($t = 3.49$, $p = .0005$) than the grade point ratios of former teacher education students who are not teaching ($\bar{X}_{nT} = 2.75$, S.D. = .53). Since the grading system of the university is based on a 4 point scale, this

difference roughly translates to a B- average for teachers and a C+ average for former students who are not teaching. However, the average SAT score of former students who are teaching ($\bar{X}_T$ = 970) is not different statistically from the average score of former students not employed as teachers ($\bar{X}_{nT}$ = 946). This lack of statistical difference is evident in the range of SAT scores for these two groups, 450 to 1450 and 550 to 1350 for the teaching and nonteaching groups, respectively. However, the modal range for the teaching group is 950/1050, while 850/950 is the modal range for the nonteaching group.

In the case of the second research question which addressed employment alternatives, two subquestions were considered. First, what employment options have our graduates taken? And, second, how many of the nonrespondents are teaching? From the information available, it was determined that 197 teachers were among the 349 individuals (56.5 percent) whose employment status is known. The remaining 43.5 percent of the sample were engaged in nine other types of employment. These data are summarized in table 2.

place table 2 about here

Examining table 2 reveals that business is the most frequently cited alternative by former education students who are not teaching currently. Moreover, former students of agricultural education and industrial education chose positions in business more frequently than teaching. In contrast, former students in curriculum and instruction and physical education selected teaching more often than any other option.

These employment patterns were also helpful in examining the probable employment status of nonrespondents. Available information combined with discriminant analysis (Nie, Jenkins, Steinbrenner, and Bent, 1975) were used to predict the occupational membership (teachers/nonteachers) of nonrespondents. Discriminant analysis was selected because it is a useful classification

technique and the available academic data on the nonrespondents were appropriate for this application. Predicting occupations were achieved through a classification function which consisted of academic variables, such as, grade point ratio, SAT total score, departmental affiliation, ordered into a linear equation (Table 3). This function was tested by classifying the known cases and then comparing the predicted occupations with actual occupations. This testing procedure led to a value presented in table 3 for the proportion of correct classifications made by the model.

place table 3 about here

Clearly the model is not infallible, since the percentage of known cases correctly classified is slightly over 70 percent. Yet we do know that a substantial number of the nonrespondents have characteristics which are similar to those of known teachers in the total sample, and thus were classified as teachers. Based on these predictions and actual reports, potentially 474 of the sample or slightly over 70 percent are teaching in elementary or secondary classrooms.

Discussion

The results of this study regarding academic ability of teacher education graduates who enter teaching is encouraging when compared to reports in the literature. Basis for this assessment rest with the favorable grade point advantage and comparable SAT scores of former students who are teaching relative to their counterparts who have made nonteaching employment choices. Interestingly, the literature (Schlechty and Vance, note 2; Weaver, 1979) indicate that individuals hired for teaching positions often have higher grade point averages than unsuccessful teaching applicants. However, these sources cite rather large differences in SAT scores of nonteachers and teachers with nonteachers holding a decided advantage. In contrast, this inquiry yielded comparable SAT averages between former education majors entering

teaching and former education students who sought and accepted nonteaching employment. Yet comparing SAT scores of education majors and their subsequent employment choice is quite different from comparing SAT scores of education majors with scores of individuals selecting other majors. However, Savage's work (note 3) conducted in the same institution as this inquiry found that senior women in education have similar ranges of SAT scores as women choosing other majors. Since nearly three-fourths of this sample were women, suggesting that the results of this inquiry contradict the findings of Weaver (1979), Schlechty and Vance (1981) and Vance and Schlechty (1982) is not illogical. A possible reason for this contradictory finding is associated with the university's SAT entrance requirements that were in effect when these students entered the university (800 to 1000 depending on rank in high school graduating class). These requirements possibly caused a floor effect, thereby reducing the variance among SAT scores. Another explanation may be as Savage has suggested that a screening process occurs throughout the program and women with high academic qualifications are opting education as a major after reassessing their original career choices. Whatever the reason it appears that the majority of individuals in this inquiry with academic ability chose teaching as a profession upon graduation. These interpretations of the results of this inquiry support the position of Watt (1980) that quality of academic ability among teaching candidates depends on admission requirements. Moreover, a considerable proportion of capable women in this inquiry chose teaching as their profession. Thus, concern about declining academic ability of teaching candidates and the flight of capable women from teaching while well documented, may not be a pervasive phenomenon throughout the nation. If teaching opportunities exist which are sufficiently attractive to capable teaching candidates, a substantial number will select a position in teaching. Thus, the quality of life that teaching affords appears to influence the career decisions of very capable teaching candidates.

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Table 1

Academic Ability Values of Former Teacher Education Students Compared by Occupation

Grade Point Ratio Comparison					
Occupation	n	$\bar{X}$	S.D.	T	PROB.
Teaching	195	2.94	.46	3.49	.0005
Nonteaching	153	2.75	.53		

SAT Comparison					
Occupation	n	$\bar{X}$	S.D.	T	PROB.
Teaching	93	969.83	136.72	1.22	N.S.
Nonteaching	82	945.52	129.19		

Table 2

Employment Options Selected by Former Teacher Education Students

Department*	Frequency Selecting Different Employment Options										
	Teaching	Student	Substitute Teacher	Homemaker	Military	Business	Administration	Therapist	Secretary	Extension Service	Unemployed
AgEd	27	6	0	1	7	31	0	0	1	7	2
EDCI	106	3	7	8	0	10	3	0	1	0	3
HEED	4	5	0	0	0	4	1	2	3	0	2
IED	4	1	0	0	3	5	0	0	0	1	0
PE	56	6	2	1	5	10	4	3	3	0	0
Total	197	21	9	10	15	60	8	5	8	8	8

* AgEd = Agricultural Education
EDCI = Curriculum and Instruction
HEED = Health Education
IED = Industrial Education
PE = Physical Education

Table 3

Classification Function and Related Information
Associated with Predicting Occupation of Nonrespondents

Classification Function

$$*C = -3.30 + 2.79\ TP_1 + .77\ TP_2 + 2.22\ TP_4 + .52\ GPR$$

This equation yielded the following results.**

Actual Group Membership	Number*** of Cases	Predicted Teachers	Predicted Nonteachers
Teachers	196	160 (81.6%)	36 (18.4%)
Nonteachers	152	68 (44.7%)	84 (55.3%)
Nonrespondents	316	278 (88%)	38 (12%)

*C = Classification Score, TP_1 = Teacher Preparation Program (TP_1 = Educational Curriculum and Instruction, TP_2 = Agricultrual Education, TP_4 = Physical Education), GPR = Grade Point Ratio.

** The percent of known cases correctly classified by this expression: 70.11%
*** The total sample was reduced from 668 to 664 due to missing data.